Human Development Index: A holistic measure of Living Levels

In an attempt to analyze the comparative status of socio-economic development the United Nations Development Program (UNDP) has constructed the Human Development Index (HDI). In its annual series of Human Development Reports the UNDP ranks the countries of the world in the Development list in accordance with their HDI achievement. The HDI attempts to rank all countries on a scale of 0 (lowest human development) to 1 (highest human development) based on three goals or end products of development; (1) **longevity** as measured by life expectancy at birth, (2) **knowledge** as measured by a weighted average of adult literacy (two-thirds) and mean years of schooling (one-third), and (3) **standard of living** as measured by real per capita income adjusted for the differing purchasing power parity (PPP) of each country's currency to reflect the cost of living and for the assumption of diminishing marginal utility of income. Using these three measures of development and applying a formula to data of all the countries, the HDI ranks them into three groups; low human development for HDI in between 0.0 to 0.499, medium human development for HDI in the range 0.50 to 0.799 and high human development for HDI achievements of 0.80 and above.

Calculation of HDI has undergone several changes over the years. The standard of living is measured using the **Income Index.** The adjusted income is calculate as the natural log of the current income, i.e. log(current income). Then natural log of 100 is subtracted from this, because it is believed that the lowest that per capita income over the past generation in any country could have been is $100 PPP. This difference gives the amount by which the country has exceeded the "lower goalpost". To put this achievement in perspective, we need to consider it in relation to maximum that a country could aspire to over the coming generation. The UNDP takes this at $40,000 PPP. Then the earlier difference is divided by the difference of the natural log of 40000 and 100, to find the country's relative income achievement. Thus we get the income index for all the countries in the range of 0 to 1. The formula to calculate the income index is:

$$\text{Income Index} = \frac{[\log(\text{current income}) - \log(100)]}{[\log(40000) - \log(100)]}$$

To find the **life expectancy** (health proxy) **index**, the UNDP starts with a country's current life expectancy at birth, and then subtracts 25 years. The latter is the lower goalpost, the lowest that life expectancy could have been in any country over the last generation. This difference is divided by the result of 85 years minus 25 years, or 60, which represents the range of ife expectancies expected over the previous and next generations. It is anticipated that 85 years is the maximum life expectancy for a country to try to achieve over the coming generation.

$$\text{Life Expectancy Index} = \frac{\text{current life expectany} - 25 \text{ years}}{85 \text{ years} - 25 \text{ years}}$$

The **education index** is made up of two parts with two-thirds weight on literacy and one-third on school enrollment. Adult literacy index and gross enrollment index are multiplied by 2/3 and 1/3 respectively.

Education Index = $\frac{2}{3}(adult\ literacy\ index) + \frac{1}{3}(gross\ enrollement\ index)$

In the final index for human development each component indices receive equal weightage. Thus

HDI = 1/3 (income index) + 1/3 (life expectancy index) + 1/3 (education index)

One major advantage of the HDI is that it does reveal that a country can do much better than might be expected to do at a low level of income, and that substantial income gain can still accomplish relatively little in human development. Further the HDI points out clearly that, disparities in incomes are greater than disparities in other indicators of development, atleast in health and education measures. HDI reminds us that by development, we clearly mean broad human development and not just higher incomes. Many countries, such as some of the higher income oil producers, have experienced growth without development. Health and education are not just inputs into the production function but are fundamental development in their own right. It cannot be argued that the nation of higher income levels whose mass of population are not well educated and suffer from significant health problems leading to shorter life spans, has necessarily achieved higher levels of development than a low income country with a higher literacy and life expectancy. A better indicator of development disparities and rankings might be found by including health and education variables in a weighted welfare measure rather than simply looking at the income levels, and HDI offers one very useful way to get at this.

The United Nations Human Development Index has made a major contribution in improving our understanding of what constitutes development and which countries are really experiencing development and which are not. Moreover, by examining each of the three major components of the HDI and by disaggregating the country's HDI to reflect income distribution, gender, ethnic, and regional differentials, we can identify not only whether a country is developing but also whether various significant groups within that country are participating in that development. Thus by combining social and economic data the HDI allows the nations to take a broader measure for their development purposes and focus their economic and social policies more directly on those areas in need of improvement.

Limitations of the Index:

The HDI is a simplification and an admittedly limited evaluation of human development. The HDI does not specifically reflect quality-of-life factors, such as empowerment movements or overall feelings of security. In recognition of these facts, the Human Development Report Office (HDRO) provides additional composite indices to evaluate other life aspects, including inequality issues such as gender disparity or racial inequality. Examination and evaluation of a

country's HDI are best done in concert with examining these and other factors, such as the country's rate of economic growth, expansion of employment opportunities, and the success of initiatives undertaken to improve the overall quality of life within a country.

Several economists have raised the criticism of the HDI that it is essentially redundant as a result of the high correlations between the HDI, its components, and simpler measures of income per capita. GNI per capita (or even GDP per capita) correlates very highly with both the overall HDI and the other two components in both values and rankings. Given these strong and consistent correlations, it would be simpler and clearer to just compare per capita GNI across countries than to spend time and resources collecting data for the additional components that provide little or no additional information to the overall index.

In the case of HDI, the inclusion of the components is problematic because it is easily plausible that higher average incomes directly lead to both more investment in formal education and better health and longevity, and definitions and measurement of years of schooling and life expectancy can vary widely from country to country.